We claim:

1. A reusable vacuum bag for forming polymeric materials, comprising:

a) a fabric layer containing reinforcement fibers; and

b) a release surface integrally disposed on at least first side of said fabric layer;

said vacuum bag capable of withstanding multiple mold cycles of a vacuum of less than ambient pressure without significant leakage.

2. The vacuum bag of claim 1 wherein said release surface comprises: silicone, fluorocarbon, PPS, PEEK, polyketone, PEI, polyamide resin, or a combination thereof.

3. The vacuum bag of claim 2 wherein said fluorocarbon resin comprises: PTFE, FEP, ETFE, PFDV, ECTPF, PFA resin, or a combination thereof.

4. The vacuum bag of claim 1 wherein said fabric layer comprises aramid, glass, graphite, carbon fiber, or a combination thereof.

5. The vacuum bag of claim 4 wherein said release surface further comprises a fiber, coating or layer.

6. The vacuum bag of claim 1 wherein said fabric layer comprises a woven or nonwoven fabric.

7. The vacuum bag of claim 1 further comprising a second layer in conjunction with said fabric layer.

8. The vacuum bag of claim 1 further comprising a resin distribution system for permitting resin flow preferentially beneath said fabric layer.

9. The vacuum bag of claim 8 wherein said resin distribution system comprises a network of veins.

10. The vacuum bag of claim 8 wherein said network of veins comprise one or more protrusions on a molded part facing side of said vacuum bag.

11. The vacuum bag of claim 1 wherein said fabric layer is a flexible performable layer.

12. The vacuum bag of claim 1 wherein said fabric layer is a semi-rigid layer.

13. The vacuum bag of claim 12 wherein said semi-rigid layer has a three dimensional mold surface.

14. The vacuum bag of claim 1 wherein said fabric layer contains both flexible performable and semi-rigid portions.

15. The vacuum bag of claim 1 further comprising an integral flat flange.

16. The vacuum bag of claim 15 wherein said integral flat flange is configured to mate with a perimeter of a mold.

17. The vacuum bag of claim 1 wherein said fabric layer comprises a translucent or transparent material for permitting the observance of resin flow and enabling UV and light curing resins to cure within said vacuum bag.

18. The vacuum bag of claim 1 wherein said bag further comprises one or more resin feed channels.

19. The vacuum bag of claim 1 further comprising one or more vacuum exhaust ports.

20. The vacuum bag of claim 1 wherein said fabric layer is configured to provide a double layer bag.

21. A method of vacuum assisted resin transfer molding in which a polymeric resin is injected into a mold in which fibrous reinforcement has been placed, said mold having disposed thereon a membrane comprising a fabric layer containing reinforcing fibers, said fabric layer provided with an integral release surface disposed on a first side of said fabric layer; said resin transfer molding being repeated with the same flexible membrane under a vacuum of at least one bar without significant leakage.

22. The method of claim 21 wherein membrane comprises a flexible performable fabric, semi-rigid fabric, or both.

23. The method of claim 21 wherein said membrane comprises a semi-rigid fabric comprising a three dimensional mold surface therein.

24. The method of claim 23 wherein said injecting step comprises injecting a polymeric material through an aperture in said membrane and along said three dimensional mold surface.

25. The method of claim 21 further comprising disposing high strength glass in said mold prior to said polymer material injecting step.

26. The method of claim 21 wherein said mold is a fixed female mold and said membrane is flexible.

27. The method of claim 24 wherein said polymer material injecting step comprises infusion of said polymer material through said flexible membrane and along a plurality of resin veins.

28. A reusable vacuum bag comprising: a fabric layer containing reinforcing fibers; a non-stick release layer disposed integrally with at least a first side of said fabric layer; said vacuum bag comprising a preferential resin flow means disposed on said first side;

said vacuum bag capable of withstanding multiple mold cycles of a vacuum of at least one bar without significant leakage.

29. A reusable vacuum bag comprising a fabric layer containing reinforcing fibers and a nonstick release material bonded to at least on a first side of said fabric layer; said vacuum bag capable of withstanding multiple mold cycles of a vacuum of less than ambient pressure without significant leakage and being transparent or translucent whereby a flow or resin can be observed through said vacuum bag.

30. A reusable vacuum bag comprising:

a fabric layer containing high strength reinforcing fibers; and

a non-stick fluorocarbon based release layer bonded to a first side of said fabric layer; said vacuum bag having a three dimensional shape formed therein and being capable of withstanding multiple mold cycles of a vacuum of less than ambient pressure without significant leakage.

31. The reusable vacuum bag of claim 30, wherein said release layer is bonded to both sides of said fabric layer.

32. The reusable vacuum bag of claim 31, wherein said release layer comprises a pair of tri-component fluorocarbon films heat-bonded to each major surface of said fabric layer.

33. The reusable vacuum bag of claim 32, wherein each of said tri-component fluorocarbon films comprise a FEP-PTFE-FEP composite film having a thickness of less than 5 mil.

34. A method of bag molding a polymeric material in which a consolidation of said material in a mold is affected by the application of fluid or gas pressure through a flexible membrane comprising a fabric layer containing high strength reinforcing fibers, said fabric layer having disposed thereon, a release material bonded on at least a first side

of said fabric layer; said bag molding being repeated with the same flexible membrane under a vacuum of at least one bar without significant leakage.